

**The Example of the Calculation for SUN Purchase Bid Winner**SOR and *Multiple Yield* for SUN INDOGB 12 10/10

Indication Target : Rp.6 Quintillion

Yield Target : 12% (99.962%)

Detail of the Bid :

| N<br>O | BIDDING OFFER                  |                                   |                       |              |              |                     |                     | RESULT                            |                                   |
|--------|--------------------------------|-----------------------------------|-----------------------|--------------|--------------|---------------------|---------------------|-----------------------------------|-----------------------------------|
|        | NOMINA<br>L<br>(RP<br>BILLION) | CUMULA<br>TIVE<br>(RP<br>BILLION) | CUMULA<br>TIVE<br>(%) | YIELD<br>(%) | PRICE<br>(%) | RRT<br>YIELD<br>(%) | RRT<br>PRICE<br>(%) | WON<br>NOMINAL<br>(RP<br>BILLION) | CUMULA<br>TIVE<br>(RP<br>BILLION) |
| 1      | 250                            | 250                               | 3.45                  | 12.20        | 99.067       | 12.20               | 99.07               | 250                               | 250                               |
| 2      | 750                            | 1,000                             | 13.79                 | 12.15        | 99.290       | 12.16               | 99.23               | 750                               | 1,000                             |
| 3      | 1,500                          | 2,500                             | 34.48                 | 12.10        | 99.513       | 12.13               | 99.40               | 1,500                             | 2,500                             |
| 4      | 250                            | 2,750                             | 37.93                 | 12.05        | 99.737       | 12.12               | 99.43               | 250                               | 2,750                             |
| 5      | 2,000                          | 4,750                             | 65.52                 | 12.00        | 99.962       | 12.07               | 99.66               | 1,733                             | 4,483                             |
| 6      | 500                            | 5,250                             | 72.41                 | 12.00        | 99.962       | 12.06               | 99.68               | 433                               | 4,917                             |
| 7      | 1,250                          | 6,500                             | 89.66                 | 12.00        | 99.962       | 12.05               | 99.74               | 1,083                             | 6,000                             |
| 8      | 250                            | 6,750                             | 93.10                 | 11.90        | 100.413      | 12.04               | 99.76               | 0                                 | 6,000                             |
| 9      | 450                            | 7,200                             | 99.31                 | 11.85        | 100.640      | 12.03               | 99.82               | 0                                 | 6,000                             |
| 10     | 50                             | 7,250                             | 100.00                | 11.80        | 100.868      | 12.03               | 99.82               | 0                                 | 6,000                             |

If the number of entry bidder is more than the indicative target, not all of them will win the bid. The winner of the bid will be decided as follows:

1. The winner of the bid is the participant who offers the same yield or above the SOR (stop – out rate), which is 12% (price = 99.962%). Therefore, the winner of the bid is the participants whose yield offer is more than 12%, which are participants 1 to 7;

2. Participants 5 to 7 won the bid proportionally based on the value of each of their offers compared to the amount of bidding for 12% yield. The example of the acquired nominal value won by participant 5 is as follows:

$$\text{Participant 5} = (2.000 : (6.500 - 2.750)) \times (6.000 - 2.750) = 1.733 \text{ billion.}$$

**APPENDIX 1.b**

**The Example of the Calculation for SUN Purchase Bidding Winner**

SOR and *Multiple Yield* for SUN INDOGB 12 10/10

Indicative Target : Rp.6 Quintillion

Yield Target : 12% (99.962%)

Details of Bidding :

| NO | BIDDING OFFERS             |                                   |                       |              |              |                     |                     | RESULT                         |                                   |
|----|----------------------------|-----------------------------------|-----------------------|--------------|--------------|---------------------|---------------------|--------------------------------|-----------------------------------|
|    | NOMINAL<br>(RP<br>BILLION) | CUMULA<br>TIVE<br>(RP<br>BILLION) | CUMUL<br>ATIVE<br>(%) | YIELD<br>(%) | PRICE<br>(%) | RRT<br>YIELD<br>(%) | RRT<br>PRICE<br>(%) | WON<br>NOMINAL<br>(RP BILLION) | CUMULAT<br>IVE<br>(RP<br>BILLION) |
| 1  | 50                         | 250                               | 3.36                  | 11.85        | 100.640      | 11.85               | 100.64              | 50                             | 50                                |
| 2  | 450                        | 700                               | 9.40                  | 11.90        | 100.640      | 11.88               | 100.64              | 450                            | 500                               |
| 3  | 250                        | 950                               | 12.75                 | 11.95        | 100.187      | 11.90               | 100.52              | 250                            | 750                               |
| 4  | 1,250                      | 2,200                             | 29.53                 | 12.00        | 99.962       | 11.96               | 100.20              | 1,148                          | 1,898                             |
| 5  | 500                        | 2,700                             | 36.24                 | 12.00        | 99.962       | 11.96               | 100.16              | 459                            | 2,357                             |
| 6  | 2,000                      | 4,700                             | 63.09                 | 12.00        | 99.962       | 11.98               | 100.07              | 1,836                          | 4,193                             |
| 7  | 250                        | 4,950                             | 66.44                 | 12.00        | 99.962       | 11.98               | 100.07              | 230                            | 4,423                             |
| 8  | 1,500                      | 6,450                             | 86.58                 | 12.00        | 99.962       | 11.99               | 100.04              | 1,377                          | 6,000                             |
| 9  | 750                        | 7,200                             | 96.64                 | 12.10        | 99.513       | 12.00               | 99.99               | 0                              | 6,000                             |
| 10 | 250                        | 7,450                             | 100.00                | 12.15        | 99.290       | 12.00               | 99.97               | 0                              | 6,000                             |

If the number of entry offers is more than the indicative target, not all participants will win the bid. The winner of the bidding is concluded as follows:

1. The winner of the bid is the participants whose offers are of the same or yield or below the SOR (stop – out rate), which is 12% (price = 99.962%). Therefore, the bidding winner is the participants whose yield offer are less than 12%, participant 1 to 8;
2. Participants 4 to 8 won the bidding proportionally, based on each of their offers compared to the offers for 12% yield. The details of the won amount evenly might be seen at the table above. The example of the nominal value calculation won by participant 4 is as follows:

$$\text{Participant 4} = (1.250 : (6.450-950)) \times (6.000 - 950) = 1.148 \text{ billion.}$$

**The Calculation of Settlement Buying/Selling Price of SUN by Bank Indonesia**

The settlement price per unit is calculated as follows:

$$P_s = (P\% \times N) + AI$$

Whereas,

$$P = \left[ \frac{N}{[1 + i/n]^{((F-1+d/E))}} \right] + \left[ \sum_{k=1}^F \frac{N \times c/n}{[1+i/n]^{((k-1+(d/E))}} \right] - [N \times c/n \times a/E], \text{ dan}$$

$$AI = N \times c/n \times a/E$$

Notes::

- $P_s$  = Settlement price per unit;
- $P$  = SUN clean price per unit;
- $P\%$  = SUN clean price per unit in percentage up to 5 decimals;
- $N$  = SUN at par nominal per unit;
- $AI$  = SUN accrued interest per unit based on the actual calculation;
- $c$  = Coupon rate in percentage;
- $i$  = Yield to maturity in percentage up to 4 (four) decimals;
- $n$  = Frequency of coupon payment in a year;
- $a$  = Actual days calculated 1 (one) day after the starting period of coupon until the date of the settlement;
- $d$  = Actual days calculated 1 (one) day before the date of the settlement until the date of the coupon payment;

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- E = Actual days calculated since 1 (one) day after the starting date of the coupon period until the date of the next payment of the coupon, wherein the settlement takes place.
- F = The calculated frequency of coupon payment left from the date of the settlement until the due date.
- k = 1,2,3,... F

### **An Example of the Calculation**

On April 14<sup>th</sup>, 2004, with the same daya method of settlement, Bank Indonesia bought/sold FR005 series of SUN with a nominal value per unit of Rp. 1,000,000,00 (one million rupiahs) with a 12,125% (twelve point a hundred and twenty five percent) coupon per year. This SUN is due on February 15<sup>th</sup>, 2006 and the coupon is paid in deferred by February 15<sup>th</sup> and August 15<sup>th</sup> every year. If the offered yield is 8,21000% (eight point twenty one thousand percent) and the settlement was done on April 15<sup>th</sup>, 2004, then the settled price for SUN per unit shall be calculated according to the following steps:

- N = Rp 1.000.000,00 (one million rupiah);
- c = 12,125% (twelve point one hundred and twenty five percent);
- i = 8,21000% (eight point twenty one thousand percent);
- n = 2 (twice) a year (semianually), on February 15 and August 15;
- a = 59 (fifty nine) days, which is the actual number of days calculated since 1(one) day after the starting date of the coupon period (February 16<sup>th</sup>, 2004) until the date of the settlement (April 14<sup>th</sup>, 2004);
- d = 123 (one hundred and twenty three) days, which is the actual number of days calculated since 1 (one) day after the date of the settlement (April 15<sup>th</sup>, 2004) until the next payment date of the coupon (August 15<sup>th</sup>, 2004);
- E = 182 (one hundred and eighty two) days, which is the actual number of days calculated since 1 (one) day after the starting date of the coupon period until the date of the next coupon payment on which the settlement

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takes place (February 16<sup>th</sup>, 2004 until August 15<sup>th</sup>, 2004);

F = 4 (four) times, which is the calculated coupon left since the date of the settlement until the due date;

k = 1,2,3, ...F

**Step 1.** Net price per unit is calculated as follows:

$$P = \left[ \frac{\text{Rp}1.000.000}{[1+8,21000\%/2]^{((4-1)+(123/182))}} \right] + \left[ \sum_{k=1}^4 \frac{\text{Rp}1.000.000 \times 12,125\%/2}{[1+8,21000\%/2]^{(k-1+123/182)}} \right] - [\text{Rp}1.000.000 \times 12,125\%/2 \times 59/182]$$

$$P = \left[ \frac{\text{Rp}1.000.000}{[1,04105]^{(3,6758)}} \right] + \left[ \sum_{k=1}^4 \frac{\text{Rp}1.000.000 \times 12,125\%/2}{[1+8,21000\%/2]^{(k-1+123/182)}} \right] - [\text{Rp}1.000.000 \times 12,125\%/2 \times 59/182]$$

$$= \text{Rp } 862.536,56 + \text{Rp } 222.400,54 - \text{Rp } 19.653,16$$

$$= \text{Rp}1.065.283,94$$

or the nett price of SUN per unit in percentage:

$$= \text{Rp}1.065.283,94 / \text{Rp}1000.000,00 \times 100\%$$

$$= 106,52839\%$$

Therefore, the nett price of SUN per unit was rounded to be Rp. 1.065.283,94 (one million sixty five thousand two hundred and eighty three rupiahs point ninety four cent) or 106,52839% in percentage.

Whereas the accrued interest per unit is as follows:

$$\text{AI} = \text{Rp } 1.000.0000 \times 12,125\%/2 \times 59/182$$

$$= \text{Rp } 19.653,16$$

**Step 2:** The settlement price per unit is calculated as follows:

$$\begin{aligned}Ps &= (106,52839\% \times \text{Rp}1.000.000,00) + \text{Rp } 19.653,16 \\&= \text{Rp } 1.065.283,90 + \text{Rp } 19.653,16 \\&= \text{Rp } 1.084.937,06 \\&\approx \text{Rp } 1.084.937,00\end{aligned}$$

Therefore, the settlement price of SUN per unit after being rounded is Rp. 1.084.937,00 (one million eighty four thousand nine hundred and thirty seven rupiahs).